HYDROLOGIC ASSESSMENT AND SIMULATIONS OF STORM WATER CONDITIONS - A CASE STUDY

Submitted for the registration as a research student for a doctoral degree

In

CIVIL ENGINEERING

Under the Guidance

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- The Problem/ Subject Matter
- Literature Survey
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INTRODUCTION

i) Storm Water Management (SWM)

ii) Case Study

The proposed Shendra Mega Industrial Park (MIP) at village Shendra; district Aurangabad in the state of Maharashtrais spread over an area of 845.26 hectares (ha), covering three villages-

i) Ladgaon
ii) Karmad and
iii) Kumbephal .

INTRODUCTION CONTINUE

ii) Case Study

The proposed Bidkin Mega Industrial Park (MIP) at village Bidkin; district Aurangabad in the state of Maharashtrais spread over an area of 8340 hectares (ha), covering the villages-

i) Bidkin
ii) Marola-Farola
iii) Nandalgaon
iv) Bokud Jalgaon
v) Jamli and Jamli Tanda etc.

LITERATURE SURVEY

1. V. Moya Quirogaa (2015) et.al
2. City of Greater Sudbury, official plan background report (2006)
3. Christopher Zoppou (2001)
4. Bras R.L (1985)
5. James, L.D. et. al., (1982)

OBJECTIVES

1. To obtain tailored and layered maps in respect of a subsector of DMIC (Delhi Mumbai Industrial Corridor) near Aurangabad (MS), India.
2. To model and analyze of the Storm water management system in DMIC subsector at Aurangabad using soft computing tools.
3. To carry out simulation of the storm water management system in order to achieve: i) a proper control on the floodplain zone in the selected study area; ii) Ideal site for planning of Industry plant, commercial and residential area; iii) the preservation of the hydraulic performance.

METHODOLOGY

1. Use of Remote Sensing (RS) and Geographic information system GIS tools
2. Use of Soft Computing tools for assessment and simulation
3. Integration of RS , GIS and soft computing tools
4. Strategies for Storm Water Management (SWM) for various flooding situations.

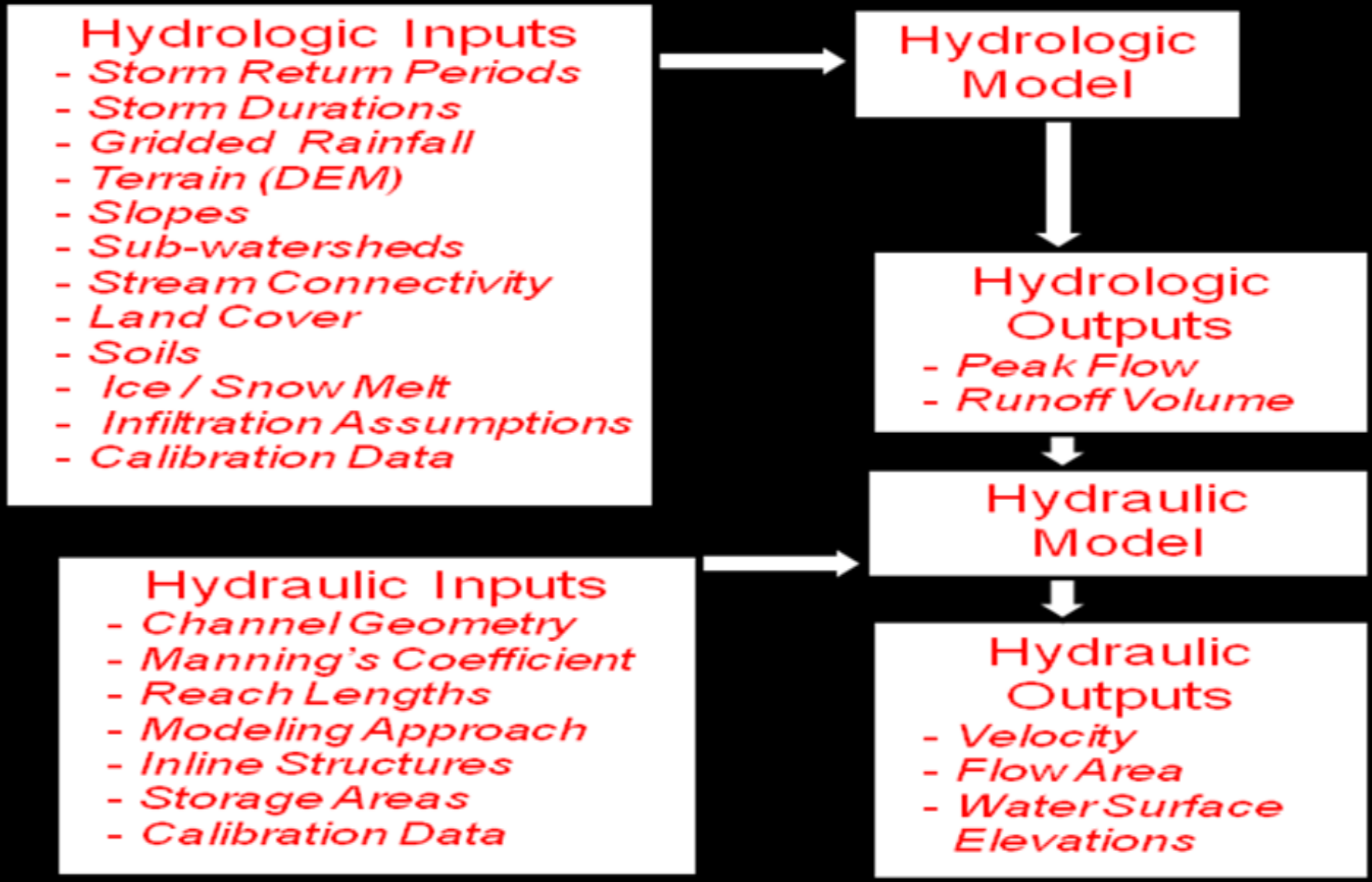

Fig.1 Typical Flow chart of model analysis

DATA COLLECTION REQUIREMENT:

- Rainfall data type (e.g., intensity, volume, or cumulative volume)
- Contour map of study area.
- Soil types and infiltration rates.
- Land use characteristics and the percent of impervious area due to development.
- Physical characteristics of the watershed including lengths and slopes.
- Characteristic width of overland flow.
- Manning's n for overland flow on both pervious and impervious areas.
- Drainage patterns of the study area.
- Drainage channel geometry and conditions.
- Depression storage in both pervious and impervious areas.

EXPECTED OUTCOMES:

- Identification of high risk flooding events using statistical methods.
- Land use and Land cover Mapping at different stages
- Impact and Response Assessment on existing drainage system.
- Preparation of flood risk maps by Simulation of various flooding Situations.
- Recommendations for measures against flooding.

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